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Where is the Record We Have Lost In Information?

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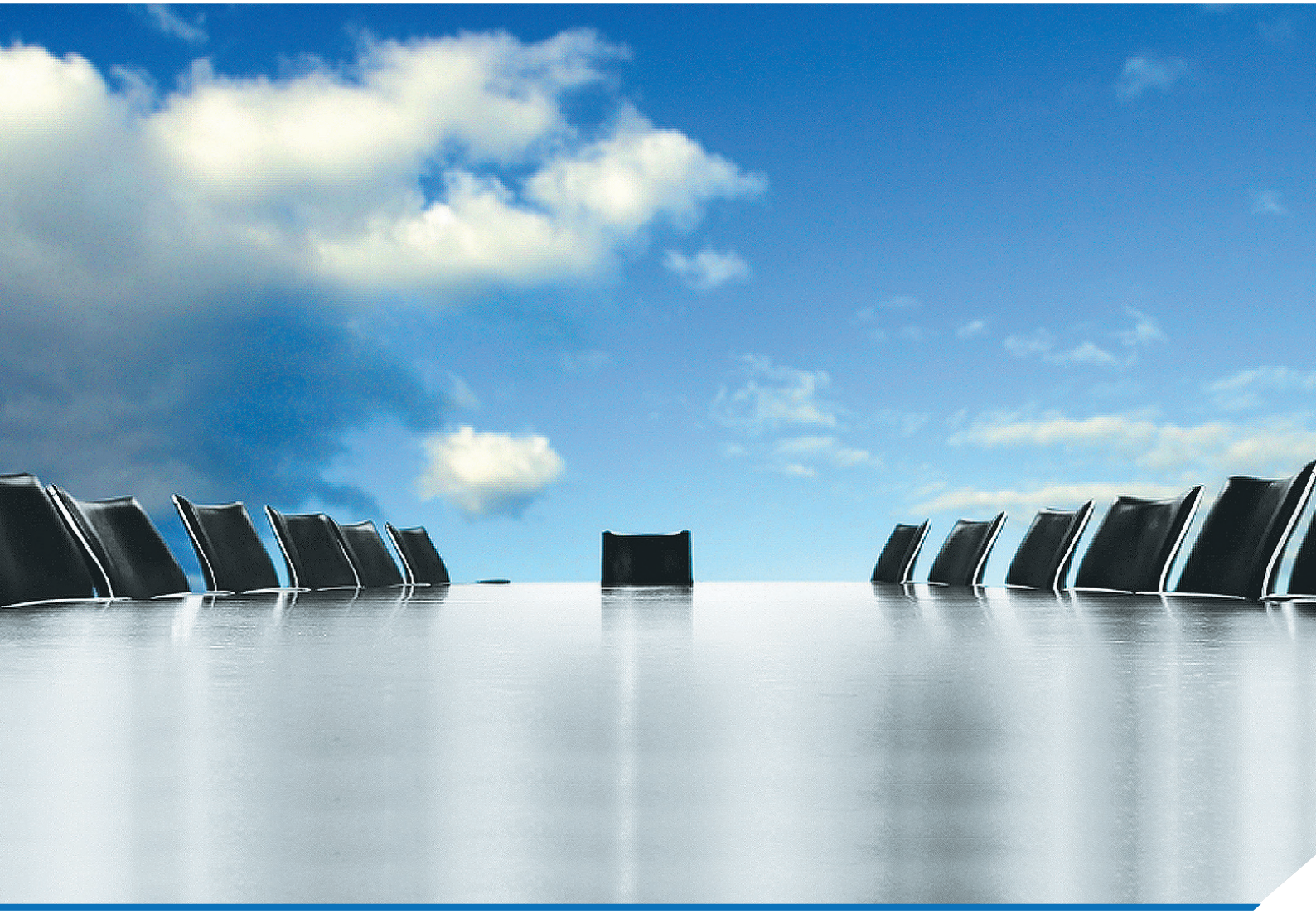

Abstract

The management guru, Peter Drucker, believed that "Every task of a developed society requires management".[1] This is especially true of recordkeeping. The dictionary definition of management is "the act, manner, or practice of managing, handling, supervision, or control".[2] The basic premise of records management in *ISO 15489* infers exactly this; it is all about the control, handling, supervision, and organisation of records.[3]

Today we can reformat, remix and 'mashup' information, and create composite information objects containing numerous different formats, such as video clips, text, and static images. These may result in the creation of a complex record. At the same time organisations are still producing relatively simple records. How many of these records, regardless of complexity, are managed effectively to meet the needs of the specific organisation in a specific industry sector? How many of these organisational records become lost in the information fog? Is this something records and information managers should be concerned about?

Information growth is exponential. A simple Internet search provides much information about the rate and scale of this growth. For example, studies into information growth carried out by the University of California, estimate that information increases at a rate of more than 30% a year.[4] How does this impact the average organisation, its information, its records and its recordkeepers? Are records in danger of being lost and are recordkeepers in danger of becoming marginalised, as Thibodeau[5] suggested, because of the computing power that now exists and the sheer amount of information that flows through even the smallest organisation? Should we be questioning whether the ISO standard and indeed the concept of a 'record', is relevant in the Web 2.0 (soon to be Web 3.0)[6] world? Are those characteristics which define 'recordness' still relevant in this environment? The medium might be somewhat changeable but what of the message?

This paper highlights some of the problems recordkeepers are faced with today and argues that the concept of a 'record' and the need to 'manage' it are as valid in the Web 2.0 world as they were in the mid 1990s when Australians developed the first recordkeeping standard.[7]

Introduction

In 1934 T.S. Eliot posed the questions: "Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information"?[8] Today we also need to ask *where is the record we have lost in information*? How easy is it to identify the records in the copious amounts of information flowing around and through an organisation? Is information overload making the identification, and thus management, of records more difficult? Are records still manageable in accordance with international standards which direct organisational policies and procedures? Are they easy to retrieve when needed and are the records robust enough to withstand the rigours they may be subject to such as admissibility in a court of law?

The business world is inundated by information, but, more is not necessarily better! On the contrary, the sheer glut may actually impede our ability to identify the records in the information vortex. In addition, we are bombarded constantly with new jargon, new technologies, and new ways of doing the business of information management. Even the management environment itself is subject to rapid and continuous change. In this bombardment 'the record' can become subsumed such that 'one cannot see the wood for the trees'.

Records that are not available for fast retrieval are useless, one might even postulate dangerous, in this increasingly litigious world, so effective management of the record is more critical than ever before. Individuals and organisations generate records deliberately and as an accidental or unconscious by-product of personal and business activity. Ideally these records are managed and retained for as long as is necessary based on the specific evidential and informational content of the records, the relevant business and compliance requirements of the particular personal or industry sector, and the context in which the individual, business entity or government agency operates. Organisations may stand or fall on the ability to provide the required information or evidential record when the need arises. Records may constitute a numerically small part of the

information world but it is essential that organisations do identify and manage their records appropriately to support and expedite the business process, enhance business success and minimise risk.

In 2007, the Management Advisory Committee (MAC) of the Australian Public Service published a report on recordkeeping entitled *Note for File.*[9] The preface of the report notes that:

> Recordkeeping is an essential part of every Australian Public Service (APS) employee's job. We all have an obligation to ensure that key decisions and events are recorded in a way that captures the important features of a discussion or decision, presents a faithful and accurate account of the key things that have occurred and can easily be retrieved when needed.[10]

The MAC believed that a sharper focus on effective recordkeeping is required:

> in response to the significant increase in the scale, breadth and complexity of records—it is now much easier for us to produce, disseminate and copy records due to information technologies, particularly email—and because of the difficulties associated with concurrently managing paper-based and digital recordkeeping systems.[11]

The report emphasised the need to use resources wisely by managing the 'right' records (useful and important Commonwealth records). It also presented the case for supporting 'good' recordkeeping by highlighting its role in improved business effectiveness and increased productivity, accountability and in the reduction of litigation risk. There is a critical need to educate the creators and users of organisational information on the identification and appropriate management of the records in this information, be it in the public or private sector. As noted in the international standard, "A record should correctly reflect what was communicated or decided or what action was taken. It should be able to support the needs of the business to which it relates and be used for accountability purposes".[12]

The record

So how does an organisation make the best possible use of the technology available today and still manage records effectively to meet all business needs, including governance and legislative requirements, and keep potential risks to a minimum? Some argue[13] that records in the current technological environment do not need to be managed in the ways of the past. Indeed, that is so, especially when one considers the physicality of the record, but one still needs to understand the concept of a record and the purpose of recordkeeping in organisations and society. Thibodeau emphasised that records still need to be recognised as a "distinct class of information assets, but also as one which merits special attention".[14]

The basic premise of what constitutes a record has not really changed over time. The international records management standard defines a *record* as "information created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transaction of business;" and *records management* as "the field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records, including processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records".[15] The standard is completely media-neutral. It actually states that it "applies to the management of records, in all formats or media".[16]

Most courts go beyond these definitions as they disregard the emphasis on records being 'managed' or 'declared' a record. Any documented information can be presented as evidence in a court of law, even if it has not been part of an official recordkeeping system. This means that information from unofficial recordkeeping systems, sometimes known as "feral" filing systems, may still be admissible as evidence in courts of law.

For documents to be acceptable as evidence in a court of law they must be declared 'admissible' which is quite different from being 'declared' a record. A record produced as evidence in a court of law may not have been deliberately 'maintained as evidence' and yet still be 'admissible'. The admissibility of evidence in any court is subject to compliance with the rules of admissibility and the interpretation placed upon it by the presiding judge. Whether evidence is admissible

depends, initially, on whether it is relevant to a fact in issue in the proceeding, not if it has been maintained or managed as part of a recordkeeping system. If relevant, evidence may nevertheless be judged inadmissible if it is excluded by a rule that provides for the exclusion of particular kinds of evidence. Establishing the authenticity and reliability of records, however, may depend on the accuracy of the process or system used to produce the record, the source of the information in the record, and the method and time of its preparation. Problems may arise with the admissibility of records if appropriate standards and procedures are not followed in creating and maintaining them. Of course, nothing can guarantee the acceptance of records in evidence before specific courts. Thus there is a very definite separation between *admissibility* of documentary evidence and the *weight* of that evidence.

To be a valuable and useful information asset, intellectual capital should demonstrate similar characteristics to those of a record: that is, it should be authentic, reliable, have integrity, and be useable and retrievable. Part of this intellectual capital is the tacit knowledge of employees. As well as developing a good records management program, an organisation should develop a process for capturing relevant tacit knowledge before this valuable intellectual capital is lost to the organisation. Once captured formally, the tacit knowledge becomes a record and thus a potentially valuable organisational asset. Leonard and Swap term this tacit knowledge as "deep smarts"; something that sets the organisation apart and makes it more successful than its competitors.[17]

Economic imperatives today demand that businesses evaluate, filter and leverage the available information, and therefore the records, to maximize business success.

Web 2.0 has enabled and encouraged collaboration across the Internet for this purpose. Tapscott and Williams indicate that:

> Smart companies are encouraging, rather than fighting, the heaving growth of online communities… Indeed, as a growing number of firms see the benefits of mass collaboration, this new way of organizing will eventually displace traditional corporate structures as the economy's primary engine of wealth creation.[18]

Record format

The context and the information contained in the record have always been more important than the actual physical carrier of the record. Format may vary or change to suit particular purposes but context and content (the evidential value) should be immutable and accessible through time and space.

Record format or medium has changed considerably over time and only the most robust survive long-term. Much of our knowledge of the activities and customs of early human society is based on the records and other artefacts that have survived, usually serendipitously. For example, Neolithic records of 'the hunt' survive today in cave-wall format (painted images) and similar records survive as petroglyphs (images incised in rock). We have no way of knowing how many other records of 'the hunt' were made on other formats such as animal skins for only the most persistent format survived—in this case stone.

The advent of the written or textual record was a milestone in human evolution, as significant as the invention of the wheel, moving type or the computer. We marvel at the records that have survived in clay tablet format or as stone obelisks but how much of the early record was lost with the format shifts from stone and clay to papyrus?

Further advances in technology continued the format shift from papyrus to vellum to paper to digital. Vellum and paper records sometimes had a wax seal added for authenticity purposes, thus creating the first complex two-format record (both textual) of which we have knowledge. Other complex formats used may simply not have survived the ravages of time. Although moving film was developed in the late nineteenth century it was not until early in the twentieth century that technology enabled the capture of sound and images as a single complex medium. This was the first time we were able to combine two quite different formats (aural and visual) into a single record.

The International Atomic Energy Agency (IAEA) noted that:

> Electronic records have evolved from simple text based files to complex digital objects that may contain embedded images (still and moving), drawings, sounds, hyperlinks or spreadsheets with computational formulas. Some portions of electronic records, such as the content of dynamic web pages, are created on the fly from databases and exist only during the viewing session. Others, such as emails, may contain multiple attachments and may be threaded (i.e. related email messages are linked into send–reply chains). These records cannot be converted to paper or text formats without a loss of context, functionality and information.[19]

A single record can be extremely complex, particularly in the digital environment. Thibodeau observed that:

> In cyberspace, what appears as a single document may actually consist of data that are stored in numerous separate objects, each with a different structure and semantics; assembled by means of an intermediate object, such as a view on a database; organized according to the specifications of a form; and presented according to the dictates of one or more style sheets. There is nothing—no single object—stored in the computer system that corresponds to the document presented to a human in such a case.[20]

Managing electronic records effectively has proven to be a much greater challenge than the management of hardcopy records and over the last two decades there has been considerable research into all aspects of electronic records.[21] Much of this research was focused on the identification of functional requirements and the development of reliable electronic recordkeeping systems and standards.[22] Today, focus is moving to how an organisation can cope with the sheer mass of information created and distributed and the capture of the record component of this information. Thibodeau and Duranti found in their research that it was useful to distinguish between two different classes of electronic records: the information kept in digital form, which they designated as a 'stored record' and the rendering of this information as a copy in a human-readable form, as a 'manifested record'. Perhaps this latter 'record' is the one organisations need to keep for evidential purposes and manage accordingly as a record.[23]

Simple case study: *record* of board meeting 1980 and 2010

To illustrate the changes to the record of a very basic but essential organisational activity consider the *official record* of a board meeting of an international corporation based in Sydney in 1980 with a similar board meeting held in 2010. In 1980 all board members would be expected to be physically present at the meeting where-as in 2010 advances in communications technology have made this physical presence unnecessary, but the digital presence is expected regardless of physical location. The board meetings at both times produce a complex record with component parts.

A "complete and accurate record"[24] of the board meeting in 1980 consisted of the agenda and associated papers, the minutes confirmed as a true record at the subsequent meeting and any papers tabled at the meeting. Often an audio recording was made of the meeting to ensure accurate minute recording. This was usually overwritten after the minutes were confirmed. Like *Hansard*, the official record of the board meeting was not verbatim. Under the approved[25] Records Retention and Disposition Schedule or Authority, the confirmed minutes and associated papers (including the agenda) are kept permanently as the official record of the board meeting. All other copies, such as those held by committee members or distributed to others, are ephemeral and do not constitute a part of the official record. Thus the official record of the 1980 meeting consisted of a number of textual components managed as a single unit, and probably stored (on paper) in the same location.

The 2010 international board meeting is very likely to be via satellite video link and the entire meeting digital in nature. A satellite link allows real-time communication between board members across dispersed locations. The agenda and associated information needed for the meeting are digital and instantly available. During the meeting technology allows the participants to converse, i-chat, and work collaboratively on documents as required. A digital video recording of the entire meeting may be produced containing sound and images so the official minutes of the meeting can be produced by an

administrator who may not necessarily have attended the meeting. What should be retained as the true and accurate record of the meeting? Should it include all the digital components of the meeting? Do we really need to keep the satellite video recordkeeping? Is this not the equivalent of the analogue cassette recording of the 1980 meeting which was only kept until the minutes were confirmed? Do we need to keep the i-chat? Is this the equivalent of the personal note-taking and verbal discussions of the participants of the 1980 meeting which did not form part of the official record? A "complete and accurate record"[26] of a board meeting is still the agenda and associated papers, the minutes recording decisions made at the meeting, and confirmed as a true record at the subsequent meeting and any papers tabled at the meeting. The change in format has not changed the content of the official record of the meeting. Therefore the record of the meeting should still include the agenda and associated papers (digital), the minutes (digital) confirmed as a true record at the subsequent meeting and any papers (usually digital objects as any paper documents would be scanned at the time) tabled at the meeting. The approved Records Retention and Disposition Schedule or Authority should reflect the retention requirements for this official record. As with the 1980 meeting, all other records can be considered ephemeral. Thus the official record of the 2010 meeting, if totally digital, is a very complex record and may consist of a number of different digital formats. Unlike the official record of the 1980 board meeting, it is extremely unlikely that the official record of the 2010 board meeting will be stored in a single location. This is where the difficulties begin for best-practice records management.

Digital work environment

There has been a steady progression of electronic office technologies from the 1980s when the software applications commonly used were word processing, spreadsheets and databases, on through the 1990s when scheduling, desktop publishing and presentation software were added to the suite of programs available. By the late 1990s object linking and embedding (OLE) and groupware applications made the office suites more intra-compatible, and the Internet meant "that more of the material employees create will likely be uploaded to the web as a means of sharing it with other users as non-paper based documents".[27] This century has seen the development of basic software to enable individuals in an organisation to work collaboratively and for the organisation to track more easily the availability of its workforce at any given time.[28] Other technological advances in communication software and hardware have made it easier to communicate across the Internet in real-time. We expect to communicate and distribute and share information instantly. To this mix can be added the additional functionality offered by the software applications provided in the Web 2.0 environment and the continued increase in computing capabilities.[29] Franks defines Web 2.0 as the "second generation of the World Wide Web. The term implies technology that facilitates communication and collaboration. Tools such as blogs, mini-blogs, wikis, podcasts, vodcasts, social networking, categorizing sites, virtual office applications, mashups, and virtual worlds abound".[30]

The 40-year-old Moore's law still indicates that information technology capabilities increase at least 40% per year.[31] This continued development has resulted in the exponential growth of information and communication. A simple Internet search provides much information about the rate and scale of this growth. For example, studies of information growth at the University of California estimate that information increases at a rate of over 30% a year,[32] and the number of blogs doubles every six months.[33]

The continued development of technology will present new challenges for management, especially in terms of data volume. Data units are constantly redefined in descriptive terms. In the 1980s data storage capacity was measured in kilobytes, now it is measured in yottabytes.[34] The International Atomic Energy Agency indicated that the management of this data is not possible without automation which itself is a challenge to the preservation of records, due partly to the dispersed nature of the electronic records but also because of technological obsolescence.[35] Obsolescence will remain a major concern to be addressed.[36] Changes in technology are almost wholly driven by business and marketing forces and those managing the records and

information have little influence on these developments. Technological development does not usually take into consideration current or long-term records and information management needs.

People will use and influence the technology available to them in different ways. This may not necessarily be in the direction that the application designers intended. For example take a look at *Sharepoint.*

Microsoft designed a package to incorporate Web 2.0 capabilities in the Microsoft Office environment. The server suite known as Microsoft Office Sharepoint Server (MOSS)[37] demonstrates how the end-user or people-factor has impacted application design. MOSS is the latest manifestation of a decade of development by Microsoft in the area of server applications. MicroSoft document management began with MicroSoft Exchange Server 2000. *The Joining Dots Blog* provides a history of this development.[38] The scandals in US business such as Enron bought into focus for software vendors, the need for recordkeeping capability and so products evolved with this 'added capability'.[39] Although MOSS has a recordkeeping 'library' for 'records', the original copy of the record remained available to users and was commonly accessed in preference to the official record in the 'library'. The official immutable record in the library was largely forgotten or ignored and users continued to work with the copy in their own library, causing enormous problems for 'official' recordkeeping. It seems that MOSS was developed by application designers without sufficient reference to the complex requirements of best-practice recordkeeping. Consequently, most users do not use the software in the way the designers intended. This does not mean that we should necessarily relegate the design concept of a separate official recordkeeping library to the dustbin of history.[40]

Applications now available as everyday tools (such as smartphones) need to be understood fully before being rolled out for use in the work environment. Just how many of these devices with their ever-increasing variety of programs such as Java applets[41] leave the organisation open to unsolicited information transfer and theft? Employees using such tools for business purposes should follow the policies and protocols developed by the organisation for the use of such tools. Without appropriate policies and protocols in place, the unexpected is likely to occur—and does. For example, consider the rollout of *Droid* on smartphones as described in a recent blogpost where the blogger described her experience with Droid as a "creepy invasion of privacy".

> My Droid grabbed all kinds of information – contacts from my corporate account, personal account, and Facebook – and integrated it into the most cohesive and well-organized address book *I've ever had*. And it did this without asking me, telling me, or with me even realizing that this was going to happen. It did this flawlessly, but it was also a little spooky going into my Contacts book and seeing profiles of friends from FB, along with their FB pictures, who had never been in my personal contacts list before.[42]

The organisation may not wish Google to make all these connections automatically between the work and non-work or personal life of an employee. But how many organisations are aware that it is even a possibility, let alone guard against it? As Zeldes, Sward and Louchheim noted:

> Technology and organizational culture have failed to properly co–evolve. Rapid advances in technology enable new work modes, but there is insufficient study, if any, upfront to predict opportunities and risks. This intelligence would allow implementation of parallel changes in the paradigms defining work ethics, management expectations and employee behavior.
>
> Instead, corporations deploy technology without that intelligence, and the culture adapts to the new technology in a haphazard and clearly sub–optimal manner.[43]

Information overload

For over a decade, various information researchers and providers have been reporting on the impact of information overload.[44] Information overload can be defined as the inability of the human brain to process simultaneously unlimited quantities of data. The average human can only process between five and nine pieces of information at any one time.[45] The broader definition in society today relates to the copious amounts of information with which we are constantly bombarded and the inability of many to process it effectively.[46]

This information may be conveyed by any medium, for example print, radio, television or other forms of digital media. This data transmission is unrelenting. In 2008, Google alone processed about 20 petabytes of data per day.[47]

Severe overload can have a significant negative impact on individuals and organisations.[48] Despite the decade of discussion about how information overload impacts organisations and despite advances in technological capabilities, the problem has not been alleviated. In fact, it appears to be worse because of the ever-increasing capabilities of technology to process data and produce information. If an organisation cannot cope with the flow of data and information how can it expect to identify and efficiently and systematically "control the creation, receipt, maintenance, use and disposition of records" in that information?[49]

Some organisations have never managed their information and records well[50] and even some with robust systems in place find the sheer volume of information today a real management challenge—apart from the fact that managing electronic records is of itself so challenging.

In a review of the literature published in 2000 Edmunds and Morris reported that:

> Although there is an abundance of information available, it is often difficult to obtain useful, relevant information when it is needed. Some solutions put forward to reduce information overload are: a reduction in the duplication of information found in the professional literature; the adoption of personal information management strategies, together with the integration of software solutions such as push technology and intelligent agents; and the provision of value-added information (filtered by software or information specialists). An emphasis is placed on technology as a tool and not the driver, while increased information literacy may provide the key to reducing information overload.[51]

According to Hemp,[52] Nathan Zeldes believed that many companies are still in denial about the problem of information overload. The information and communications firm, 210 Communications, suggested that organisations are drowning in the information which is the basis of their intellectual capital:

> Many companies find themselves immersed in unorganized, inconsistent, hard-to-find information that can wreak havoc on business. The effective capture and use of your organization's knowledge is integral to success, and when information is scattered or non-existent, your workers are frustrated, productivity slows, and customers might walk right into the arms of your more organized competition.[53]

Problems associated with the information overload

Eppler and Mengis, using two variables—information processing capacity (IPC) and information processing requirements (IPR),[54] showed that the interplay between the technology and people affected these variables and so the impact of information overload on the individual and so the business. They related these two variables to five interrelated all-encompassing factors: the information itself, the technology used, the person receiving or communicating the information; the organisation at the centre of the activity, and the role tasks to be performed by the person in that organisation. It is often difficult to separate these factors from one another as they are so interrelated.

Information and its subset, the record, have value but the measure of that value will depend upon the context as well as the information content. A specific piece of information may be extremely relevant in one situation but be of peripheral value or even have no value at all in another. Tang *et al.* argued that the value of information at any one time relies on a combination of its relevance, impact, costs, currency, usability, accuracy and trustworthiness.[55] Data value for an organisation depends on the benefits of having the information (and the record) available when required in a format which is accessible and demonstrates the characteristics of authenticity, reliability, integrity, and usability.[56] This benefit must be balanced against the cost of managing the information and/or the record.

Data quality is a key variable. Ask questions about the data: is the information ambiguous? Is it accurate? Is it trustworthy? Is it complete? Does it have context? etc.[57] Osborne emphasised the importance of data quality:

> Managing this data can be an enormous task, particularly when it isn't stored in the same place but is fragmented over a multitude of different systems or databases. And if your data can't be managed properly, how can you ensure its integrity? After all, what good is that information if it simply isn't correct, or is out of date, is unnecessarily duplicated or has vitally important detail missing? Data quality is increasingly becoming a concern for those organisations who wish to ensure that the data they hold is adequately managed and is of the best and most accurate standard that it can be.[58]

Osborne provided an example of data quality problems at British Telecom:

> What, perhaps, was most embarrassing was the number of marketing mailings that the telecoms giant was sending to telephone boxes – even telephone kiosks on trains – because it could not easily distinguish between the various different 'nodes' on its network. "We couldn't differentiate between a telephone box, a traffic light and a customer at that time," concedes Nigel Turner, manager of the information and knowledge-management consultancy at BT.[59]

Another example of the use of poor-quality information is illustrated by the problems experienced by the London construction industry in the lead-up to the 2012 Olympics. It was reported that 73 percent of construction projects were running over budget and 50 percent of the errors made were blamed on "poor information".[60]

In addition, workers need to become more information literate and the required level of literacy is continually increasing. Tang *et al.* argued that "The diversity of understanding required for the use, capture and re-use of information, information system and knowledge management creates a culture that inhibits employees' capability and full functioning of the adopted systems in an organisation".[61]

The human capacity to manage the flow of information during a work period is not unlimited. The pressure to complete assigned tasks in a given timeframe also impacts the quality of work performance and decision-making. The information and records related aspects of this work may be a secondary consideration to task completion and thus may be neglected deliberately or simply forgotten if not incorporated seamlessly into work processes.

In 2009, Hemp noted that:

> Most organizations unknowingly pay a high price as individuals struggle to manage the information glut. For one thing, productive time is lost as employees deal with information of limited value. In the case of e-mail, effective spam filters have reduced this problem. Still, a survey of 2,300 Intel employees revealed that people judge nearly one-third of the messages they receive to be unnecessary. Given that those same employees spend about two hours a day processing e-mail (employees surveyed received an average of 350 messages a week, executives up to 300 a day), a serious amount of time is clearly being wasted.[62]

As well as changing the way people work, technology has changed the way people think about work. Many do not follow the traditional 9–5 model or work in a designated physical space. Technology has blurred the distinctive boundary between work and non-work and enabled immense flexibility in terms of when and how work is performed. There will be some workers tethered to their communication devices 24/7 and some who may not have a defined sense of the boundary between the work environment and the non-work or social environment. This lack of understanding about the boundaries surely spells new challenges for management. As well as the often unauthorised use of resources, the organisation may be exposed to significant risk.

The report on *The Impact of Social Computing on the EU Information Society and Economy* noted that:

> …in spite of their enormous potential, these applications could be misused and could, for example, create inefficiencies, social damage or undermine institutional credibility. It is suggested that governments and public institutions in education, health, etc. should pay more attention to the governance of changes brought about by Social Computing applications. On the one hand, they could integrate or support Social Computing-based bottom-up social innovation, and on the other hand, they could work towards the prevention and management of the potential risks involved.[63]

Organisations need to meet these challenges and, at the very least, define acceptable use policies and protocols with appropriate defence mechanisms in place to minimise risk exposure.[64]

Possible solutions

One cannot deny the all-encompassing reality of the digital environment. It offers unprecedented opportunities for the business world. The associated risks are also high if not identified and managed appropriately. In addition to the valuable decision-making resource or asset they provide to the organisation, records are still needed to provide information about and evidence of previous activities and transactions. Organisations may still be required to produce 'records' as evidence in courts of law.

The working document produced dynamically as a Web 2.0 artefact is not a 'record' until it is saved as a record. That is, it is captured deliberately and 'fixed' into a 'structure' which can be retrieved as required. Other characteristics of 'recordness' must also be evident before the web artefact can be considered a 'record'. For example it must be complete, authentic, and reliable, have integrity and stand the test of evidential value for judicial purposes. Context data is still a vital aspect of the record. Ideally, the capture of records in the digital environment is done at the point of creation. The creation of a record may be a deliberate action on the part of the individual creator or possibly an automated action integrated deliberately and seamlessly into a business process. This requires an understanding and application of records management principles and processes as outlined in *ISO 15489.* "Systems should provide timely and efficient access to, and retrieval of, records needed in the continuing conduct of business and to satisfy related accountability requirements". [65]

In his discussion of *Records Management for the Web 2.0 World*,[66] Bailey inferred that in this environment records management has more to do with the format of the record than the overall principles of records management. His argument revolves around the premise that "the notion of management *regardless of format*"[67] will not work in a Web 2.0 environment. However, research indicates that we still need to manage records effectively to expedite business success, to minimise risk exposure, and for accountability purposes.[68] Regardless of the nature of the business and current work practices, policies and protocols should define appropriate recordkeeping principles and standards.[69] This includes those that apply to metadata management. Much of the metadata needed for information management can be gathered by automatic processes incorporated into standard applications such as the MSOffice suite. Well written and implemented protocols which direct employees on the choices to be made as well as explaining how these choices will enhance their workflow and business outcomes must be part of information and records management. These protocols have a greater chance of success when collectively 'owned' across the organisation. Jander maintained that such policies should be developed cooperatively by all those in the organisation with a vested interest:

> In order to create Web 2.0 applications that work, policies that address employee conduct and other basic issues, are needed from the onset. And constituents from throughout the company—the legal department, human resources, upper management, as well as IT—need to be involved in setting those policies.[70]

Practitioners have found that, to be successful, protocols for recordkeeping have to be incorporated seamlessly into work processes. When engaged on a large records and information management project across multiple sites, Bettington emphasised the importance of integrating recordkeeping into business processes, rather than simply implementing an eDRMS and imposing additional expectations and work tasks on staff.[71] Practitioners should be aware of the research done in the first half of the twentieth century by the management community. It was Zipf who proposed the *principle of least effort*.[72] This principle has been used in the information management and information technology world to improve search facilities in databases[73] and should also be considered when

planning recordkeeping systems for this information-rich era.

Even where formal protocols exist for best-practice recordkeeping, some agencies find it a real challenge. For example, the records management policies and procedures of the Ministry of Defence (MOD) in the United Kingdom emphasised that mechanisms should be in place to ensure that "all types of record are captured",[74] but a specific footnote qualified this statement:

> The ERMS should be able to handle all kinds of data object. However, there may be limitations on the storage of large and complex digital objects such as websites (for example all hyperlinks may not be stored) and active databases (ERMS may only store regular 'snapshots' of information).[75]

When discussing the barriers to effective knowledge management du Plessis noted that it was important for organisations to "understand what knowledge is critical to keep and what should not be kept… Organisations, therefore, have to define what knowledge is strategic to them and manage that".[76] In section 9 of *ISO 15489*, Records management processes and controls, the decision about which records should be "captured into a records system is based on an analysis of the regulatory environment, business and accountability requirements and the risk of not capturing the records".[77] The *Standard* acknowledges that documents may be dynamic but, to be regarded as a record, they must have integrity, which refers "to its being complete and unaltered".[78]

Education is the key to the successful management of records and information and something that is often neglected. In addition, too often users are thought to be more technically literate than they actually are.[79] Users must be made aware of and educated about the responsibilities and risks that accompany the greater business opportunities offered in the digital world. McLeod, Hare and Johare[80] noted that different types of education and training opportunities are required for different roles within the organisation.

All employees from the CEO downwards should be made aware of their specific responsibilities in relation to records and information management. Management has an overall responsibility to ensure that appropriate training is available to all staff. The international recordkeeping standard argues that:

> Records management responsibilities and authorities should be defined and assigned, and promulgated throughout the organization so that, where a specific need to create and capture records is identified, it should be clear who is responsible for taking the necessary action. These responsibilities should be assigned to all employees of the organization, including records managers, allied information professionals, executives, business unit managers, systems administrators and others who create records as part of their work, and should be reflected in job descriptions and similar statements. Specific leadership responsibility and accountability for records management should be assigned to a person with appropriate authority within the organization.[81]

Conclusion

Good business practice dictates that management should gain and maintain control of organisational records and information for a multitude of purposes, ranging from enhanced business success to accountability and historical purposes. Peter Drucker stated that it was "Management's duty is to preserve the assets of the institution in its care".[82] Records are one of those institutional assets.

The artefacts in our museum and archive collections are a testament to the fact that robust records can survive millennia. The 'mashup' created today may well survive over the long term, but these complex records may be difficult to interpret if they are orphaned. Records become orphaned when they are not managed, when there are no protocols for providing them a place in the organisational memory, when they are not "persistently linked to, or associated with, the metadata necessary to document a transaction".[83]

The sheer glut of digital information and records is unlikely to subside. Information overload is a reality but it should not be used as an excuse for lack of best-

practice records management. Neither should the new way of working in the Web 2.0 world be used as an excuse for neglecting the management of records. Records created on the fly in a particular viewing or work session must still be kept/saved as a record if important to the organisation.

It has become even more critical in the Web 2.0 world, with its overwhelming glut of information, to identify and manage records appropriately. The management of information and records in the current business environment should be a matrix of shared responsibilities between recordkeeping professionals, information technology professionals and strategic management. Together they should define and develop the desired objectives, policies and standards, the strategic plans to achieve those objectives, policies and standards, and provide the necessary resources to make it all happen.

The concept of 'the record' as evidence supporting business needs by reporting what was communicated or decided or what action was taken is as valid in the Web 2.0 world is it was in the mid 1990s. The management strategies needed to maintain the record and to ensure that it remains authentic, reliable, retains its integrity and remains useable are arguably very complex but not impossible. *ISO 15489* still provides a blueprint for identifying the goals of best practice. Perhaps what are needed are some new roadmaps to enable us to arrive at that destination.

End notes

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21 See projects such as the very early University of Pittsburgh Project (Functional requirements 1996 http://www.archimuse.com/papers/nhprc) through to the International Records Management Trust projects (http://www.irmt.org/researchReports.html) and the InterPARES Project (http://www.interpares.org).

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[39] The *Sarbanes–Oxley Act* of 2002 had a major impact on recordkeeping on US companies operating worldwide. The legislation was enacted in response to a number of major corporate and accounting scandals including those affecting Enron, Tyco International, Adelphia, Peregrine Systems and WorldCom. These scandals, which cost investors billions of dollars when the share prices of affected companies collapsed, shook public confidence in the nation's securities markets. See Wikipedia entry. Retrieved December 9, 2009, from http://en.wikipedia.org/wiki/Sarbanes-Oxley_Act

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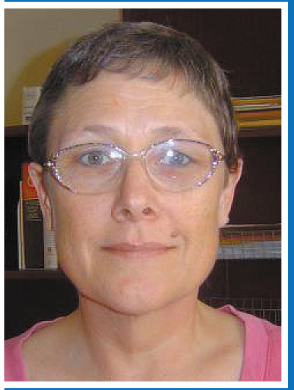

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